



REGULATORY GUIDE: Reporting an Accident

Regulation 46 of the [Australian Radiation Protection and Nuclear Safety Regulations 1999](#) (the regulations) is a licence condition that applies to every source and facility licence issued by the CEO of ARPANSA. It requires the licence holder to take all reasonably practicable steps to prevent an accident involving controlled materials, controlled apparatus or controlled facilities. If an accident happens, the licence holder must take all reasonably practicable steps to control the accident and to minimise the consequences, including injury to any person and impact on the environment. The licence holder must tell the CEO about the accident within 24 hours and provide a written report about the accident within 14 days.

This document provides guidance on what, when and how to report an accident.

What to report as an accident

For the purposes of regulation 46 an ‘accident’ is any unintended or ill-advised event when using ionizing radiation apparatus, specified types of non-ionizing radiation apparatus or radioactive substances, which results in, **or has the potential to result in**, an exposure to radiation to any person or the environment, outside the range of that normally expected for a particular practice, including events resulting from operator error, equipment failure, or the failure of management systems that warranted investigation.¹

Licence holders should refer to Schedule 13 of the [National Directory for Radiation Protection](#) (NDRP) for examples of the types of incidents that regulators are required to report to the Australian Radiation Incident Register. The events described in the NDRP, whilst referred to as ‘incidents’ are regarded as events to which regulation 46 applies.

Any event that is rated at, **or has the potential to be rated at**, Level 2 or above on the [International Nuclear Event Scale](#)² (INES) is regarded as an accident for the purposes of regulation 46. That is:

- An incident with significant failure in safety provisions but with sufficient defence in depth remaining to cope with additional failures. This includes an event where the actual failure would be rated at level 1 but which reveal significant additional organisational inadequacies or safety culture deficiencies; or
- An event resulting in a dose to a worker exceeding the statutory annual dose limit and/or an event which leads to the presence of significant quantities of radioactivity in the installation in areas not expected by design and which require corrective action.

The [INES User’s Manual](#) provides guidance on rating events.

¹ National Directory for Radiation Protection – Edition 1.0 (Radiation Protection Series No. 6)

² The International Nuclear Event Scale User’s Manual, 2001 Edition

Examples of events to which regulation 46 applies:

1. A personal dosimeter (TLD) records a whole body dose in excess of the statutory dose limit (50 mSv).

The licence holder must assume this to be a true dose received by the badge wearer until it can be reasonably demonstrated otherwise. The licence holder must report this as an accident as soon as becoming aware that the dose limit has been exceeded, bearing in mind that there will be a time lag between the actual over-exposure event and the notification. (NDRP S13.2.1)

2. A solution containing 200 GBq of H-3 is spilt in a laboratory. Contamination is detected outside the laboratory in a normally 'clean' area requiring the area to be sealed off and decontaminated.

Spillage of more than 100 times the exemption limit³ of an isotope has occurred. There has also been contamination detected in areas not expected by design and which required corrective action (NDRP S13.2.7).

3. A person uses a UV transilluminator before realising they have forgotten to use the protective shield. The next day the person wakes up with pain and swelling in the eyes. When examined at the emergency ward, the person is found to have burns to the cornea of both eyes.

Operator error has resulted in injury requiring medical attention (NDRP S13.2.9)

4. An industrial gamma-radiography apparatus is in operation at a location at a building site. When attempting to retract the wind-out cable the gamma source becomes separated from the apparatus.

Equipment failure has resulted in a situation where there is a potential for exposure to exceed that normally expected and to also exceed the exposure limit, depending on the recovery process. In terms of the NDRP this event must be reported as an out of control source of radiation (NDRP S13.2.8)

5. A reactor becomes critical when an operator disregards the operating procedure for manipulating the control rods. The resulting power excursion is stopped without damaging the fuel or contaminating the reactor hall but a technician receives a high dose.

Likely overexposure in excess of the dose limit. (INES 2) In terms of the NDRP this event must be reported as a criticality incident (S13.2.10)

³ Exemption limits appear in Schedule 2 Part 2 of the regulations and in Schedule 4 of the NDRP

When to report an accident

An accident must be reported to the CEO of ARPANSA within 24 hours of it occurring or of the licence holder becoming aware of it. This initial notification must be followed up by a comprehensive written report within 14 days.

How to report an accident

During normal business hours licence holders should phone their assigned regulatory officer or the Director, Regulatory & Policy on (02) 9541 8331.

Outside normal business hours licence holders should contact the ARPANSA 24 Hour Radiation Emergency Coordination Centre on (03) 9432 5384. Calls to this number will be re-directed to a mobile phone carried by the Duty Officer.

As soon as possible after the telephone notification an [Accident Notification Form](#) should be completed and faxed to (02) 9541 8348 or emailed to licenceadmin@arpansa.gov.au.

Information required in the written report

The licence holder must provide the CEO with a detailed written report within 14 days of the initial accident notification. The report must contain a complete account of the accident and its consequences, including:

1. A root cause analysis
2. An estimate of the dose received by any person
3. An assessment of any environmental impact
4. Corrective action taken as a result of the accident
5. Actions taken to prevent the recurrence of similar events
6. The impact on the safety case (for facilities)

Other abnormal events

Any other abnormal event that has the potential to affect safety should be reported on a quarterly basis except as otherwise required by special licence conditions.